

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

Listing of Claims

1. (Currently Amended) A method for layered structure breaking strength estimation, comprising: ~~characterized by~~

inserting an edge of a cutting blade into an upper layer of the structure,

moving the cutting blade substantially in parallel with an interface between the upper layer and a lower layer of the structure while automatically controlling a depth of the cutting blade ~~being controlled~~ to such a depth slightly ~~upper~~ higher than the interface ~~that a cutting piece remains on the cutting blade~~, and

measuring a force exerted on the cutting blade substantially in parallel with the interface.

2. (Canceled)

3. (Currently Amended) A method for layered structure breaking strength estimation according to claim 1 ~~or 2~~, wherein the force exerted on the cutting blade substantially in parallel with the interface, a force exerted on the cutting blade

substantially vertical to the interface, and the depth of the cutting blade are expressed in the form of a graphic profile of change with time.

4. (Currently Amended) A method for layered structure breaking strength estimation according to ~~claims 1 or 2~~ claim 1 or 3, wherein ~~[[an]] the depth of the cutting blade is automatically controlled to increase or decrease by a unit of displacement of the cutting blade for determining the depth of the edge of the cutting blade is not greater than 2 micrometer.~~

5. (Currently Amended) ~~An apparatus for~~ A layered structure breaking strength estimation apparatus comprising:

a cutting blade,

~~[[a]] inserting~~ means for inserting an edge of ~~[[a]] the~~ cutting blade into an upper layer of the structure,

~~[[a]] moving~~ means for moving the cutting blade substantially in parallel with an interface between the upper layer and a lower layer of the structure,

control means for automatically controlling ~~while~~ a depth of the cutting blade being controlled to such a depth slightly ~~upper~~ higher than the interface ~~that a cutting piece stays on the cutting blade, and~~

~~[[a]] measuring~~ means for measuring a force exerted on the cutting blade substantially in parallel with the interface.

6. (Canceled)

7. (Currently Amended) ~~An apparatus for~~ A layered structure breaking strength estimation apparatus according to claim 5 ~~or 6, more~~ further comprising [[a]] graphic means for expressing the force exerted on the cutting blade substantially in parallel with the interface, a force exerted on the cutting blade substantially vertical to the interface and the depth of the cutting blade in the form of a graphic profile of change with time.

8. (Currently Amended) ~~An apparatus for~~ A layered structure breaking strength estimation apparatus according to ~~claims 5 or 6~~ claim 5 or 7, wherein [[an]] the depth of the cutting blade is automatically controlled to increase or decrease by a unit of displacement of the cutting blade for determining the depth of the edge of the cutting blade is not greater than 2 micrometer.

9. (New) A method for layered structure breaking strength estimation according to claim 1, wherein the cutting blade is moved while automatically controlling the depth of the cutting blade to be constant.

10. (New) A method for layered structure breaking strength estimation according to claim 1, further comprising measuring a variable force exerted on the

cutting blade substantially vertical to the interface while maintaining the cutting depth constant.

11. (New) A method for layered structure breaking strength estimation according to claim 1, further comprising arranging a first motor to move the cutting blade in a direction parallel to the interface and arranging a second motor separate from the first motor to move the cutting blade in a direction vertical or perpendicular to the interface.

12. (New) A method for layered structure breaking strength estimation according to claim 1, wherein the step of moving the cutting blade while automatically controlling the depth of the cutting blade comprises mounting the cutting blade on a longitudinal slide way, moving the longitudinal slide way in a direction vertical to the interface by means of a longitudinal ball screw and coupling a motor to the longitudinal ball screw to enable automatic control of the movement of the cutting blade in the direction vertical to the interface and thus the depth of the cutting blade.

13. (New) A method for layered structure breaking strength estimation according to claim 12, further comprising adjusting the depth of the cutting blade by controlling the motor to actuate the longitudinal ball screw.

14. (New) A layered structure breaking strength estimation apparatus according to claim 5, wherein the cutting blade is moved by the moving means while the depth of the cutting blade is automatically controlled to be constant by the control means.

15. (New) A layered structure breaking strength estimation apparatus according to claim 5, further comprising measuring means for measuring a variable force exerted on the cutting blade substantially vertical to the interface while the cutting depth is maintained constant by the control means.

16. (New) A layered structure breaking strength estimation apparatus according to claim 5, further comprising a first motor arranged to move the cutting blade in a direction parallel to the interface, and a second motor separate from the first motor arranged to move the cutting blade in a direction vertical or perpendicular to the interface.

17. (New) A layered structure breaking strength estimation apparatus according to claim 5, wherein the control means comprise a longitudinal slide way on which the cutting blade is mounted, a longitudinal ball screw arranged to move the longitudinal slide way in a direction vertical to the interface, and a motor coupled to the longitudinal ball screw to enable automatic control of the movement of the

cutting blade in the direction vertical to the interface and thus the depth of the cutting blade.

18. (New) A layered structure breaking strength estimation apparatus according to claim 17, wherein the motor is controlled to actuate the longitudinal ball screw and thereby adjust the depth of the cutting blade.